

### **AMENDMENTS TO THE SPECIFICATION**

Please replace the following paragraphs of the specification. Applicant includes herewith an Attachment for Specification Amendments showing a marked up version of each replacement paragraphs, which corresponds to the clean version of the substitute specification filed April 7, 2005.

***Please replace the paragraphs on page 2, lines 26-29 of the clean version of the substitute specification.***

#### **Brief Description of the Drawings**

Figure 1 is a cross section of a pollution control device.

Figure 2 is a cross section of an alternative pollution control device.

Figure 3-3a is a cross section of an alternative pollution control device.

Figure 3b and 3c are cross sections of alternative pollution devices with directional gas flow.

***Please replace the paragraphs beginning on page 2, line 30 – page 3, line 34 of the clean version of the substitute specification.***

#### **Description of the Invention**

An embodiment of the invention is described in figure 1 and another embodiment of the invention is described in figure 2. In both figures, reference character 1 is a valve mechanism for the direction of air (gas) in alternating directions through the equipment. Reference characters 2 and 3 are connecting ducts for incoming raw and outgoing cleaned gas respectively. Reference characters 4 and 5 are wind boxes for distribution and collection of air (gas) that goes through the heat transfer matrix 6. In the design shown in figure 1, this the matrix is divided into two parts 6 and 6' surrounding a combustion chamber 7 which is absent in the design shown in figure 21 where the heat exchanging matrix stretches all the way between the two wind boxes 4 and 5.

Both designs ~~comprises~~ include means for heating in a hot zone 12: in figure 1, in the form of electric heaters 8; and in figure 2, in the form of a burner 9. Both designs also incorporate catalytically active zones 10 and 11 within the heat exchanging matrices. The catalytically active zones are ~~operated~~ separated from the hot zone 12 by at least one intermediate zone 14. In the design of figure 1, the temperature is high in the center, or ~~not~~ hot zone 12, of the heat exchanging matrix 6 and gradually decreases towards top and bottom. In the design in figure 2, the temperature is high in the ~~hot zone~~ hot zone 12 or in the combustion chamber 7, 12 and the upper parts of the intermediate zones 14 of heat exchanging matrixes 6 and 6'. The

temperature gradually decreases towards the bottom of the heat exchanging matrices. By regenerative heat exchange and regular switching of the direction of flow through the equipment, these temperature patterns can be generally maintained without excessive heat demands being put on the heating means 8 (figure 1) and 9 (figure 2). When the oxidation of pollutants in the gas stream produces enough energy, they can be switched off altogether.

In operation, raw polluted gas is first mixed with ammonia, urea, or other compound able to act as a selective nitrogen oxides reducing agent. The mixture is then introduced into a cold end of a heat exchanger matrix and by passing through the heat exchanger matrix, the mixture it is successively heated to oxidation or decomposition temperature which is attained in the inner part of the equipment, i.e., the hot center of the matrix in fig. 1 including the hot zone 12 and at least a portion of the intermediate zone 14; or the intermediate intermediate zone 1214 at the uppermost parts of the matrices 6 and 6' and the hot zone 12 in the combustion chamber hot zone 7-12 in fig. 2. Before reaching this high temperature, however, the mixture is passed through the catalytically active zone 10, 11 of the heat exchanger matrix 6 or 6'. Here, nitrogen oxides react with the mixed in reducing agent so as to be ~~and are thus~~ removed. The catalytic zone 10, 11 is placed in the heat exchanging matrix in such a way that the temperature conditions there are favourable favorable for this reduction and a selective catalytic reaction (SCR) takes place. The reaction takes place at a substantially lower temperature than an SNCR reaction and this together with the use of catalyst makes a more thorough reduction possible as compared with an operation according to European patent EPC 609 288. Further, and lower levels of concentration of nitrogen oxides are obtainable, e.g., When the inlet concentration of nitrogen oxides is low, the difference becomes significant.